DISCUSSION OF REVENUE ESTIMATION METHODOLOGY AND PROCESS

Prepared by the Staff

of the

JOINT COMMITTEE ON TAXATION

August 4, 1992

JCX-31-92

CONTENTS

INTRODUCTION

This document,[1] prepared by the staff of the Joint Committee on Taxation ("JCT staff"), provides a discussion of the JCT staff revenue estimation methodology and process. This document is prepared to help answer questions that have been asked concerning these functions.

Part I of the document discusses revenue estimation methodology. Part II answers certain commonly asked questions concerning the revenue estimation process. The Appendix includes data on the number of revenue estimate requests received by the JCT staff in recent years.

---

[1] This document may be cited as follows: Joint Committee on Taxation, Discussion of Revenue Estimation Methodology and Process (JCX-31-92), August 4, 1992.

I. REVENUE ESTIMATION METHODOLOGY

A. Overview

In general

Revenue estimates measure the anticipated changes in Federal receipts that result from proposed legislative changes to the Internal Revenue Code.

This discussion outlines the major elements involved in revenue estimating methodology performed by the JCT staff. The demand for analyses of revenue effects has increased significantly in recent years. The number of revenue estimate requests doubled from 420 in 1987 to 900 in 1988, and increased further to 1,290 in 1989, and to 1,460 in 1991 (see Appendix A). With the increased demand for revenue analysis, the JCT staff has received numerous inquiries about the methodology and process of revenue estimation. Part II of this pamphlet provides information about the revenue estimating process in a question and answer format.

JCT revenue estimating staff

The estimating staff currently consists of 14 economists and four computer specialists. All the economists in this group have advanced degrees. These individuals are responsible for the data collection and modeling necessary to estimate the revenue effects of proposed changes in the Internal Revenue Code. They draw on the professional expertise of other JCT staff, other tax professionals, as well as the academic literature on the economics of taxation to assist them in their analysis.

Interaction with Treasury Staff

The JCT staff works closely with the staff of the Office of Tax Analysis of the Treasury Department ("Treasury OTA staff"). This interaction provides continuous consistency checks in model development and maintenance. Although specific Congressional Member requests remain strictly confidential, the sharing of research and certain resources improves the overall estimating process.

B. Elements of Revenue Estimates

Requests for revenue estimates range from those affecting broad groups of taxpayers (e.g., proposals to exempt all interest and dividends from gross income or to adopt a value-added tax) to those affecting narrowly defined taxpayers (e.g., a proposal to provide targeted relief to a few taxpayers). Each proposal is estimated using essentially the same methodology. In simple terms, two basic

calculations are required. First, one must determine the revenue yield of present law. This is known as the revenue baseline. Second, one must estimate the revenue yield that will result from the tax law after it is modified. The difference between the revenue forecast of the baseline and the revenue forecast of the modified law is the revenue estimate. The following discussion summarizes the analysis used to derive a revenue estimate.

1. The Baseline

Budget period and the budget baseline

As mandated by the Congressional Budget Act, revenue estimates published by the JCT staff provide a fiscal year budget impact for the period ending five years following the current fiscal year (total of six fiscal years). This estimating convention is consistent with the forecasting period utilized by the Congressional Budget Office (CBO) and the Office of Management and Budget (OMB) when forecasting economic aggregates and providing the budget baseline for receipts and expenditures.

The reference point for a revenue estimate prepared by the JCT staff is CBO's five-year projection of Federal receipts and outlays, referred to as the revenue baseline. The revenue baseline serves as the benchmark for measuring the effects of proposed tax law changes. The baseline assumes that present law remains unchanged during the five-year budget period. Thus, the revenue baseline is an estimate of the Federal revenues that will be received over the next five years in the absence of statutory changes. The size of the revenue baseline is determined by CBO forecasts of macroeconomic variables such as the annual rate of growth of nominal gross national product (GNP), inflation rates, interest rates, and employment levels. For modeling purposes, a number of elements of the CBO forecast are disaggregated to match specific tax-related variables. For example, the aggregate forecast of State and local taxes paid is statistically matched to various types of taxpayers.

CBO characterizes the budget baseline as designed to show the pattern Federal Government revenues and spending would take during the next five years if current law were continued without change. Because many changes in budget policies are likely to occur, the budget baseline is not a prediction of budget outcomes. Rather, it serves as a benchmark for measuring the budgetary effects of proposed changes in tax and spending laws.

An alternative set of economic forecasts generated by the Administration's Council of Economic Advisers provides the baseline for estimates done by the Treasury OTA staff. Differences in resulting revenue estimates between the JCT

staff and the Treasury OTA staff often can be traced to differences between these sets of economic forecasts.

Interpretation of present law

Under certain circumstances, the baseline may be unclear. Issues may arise as to the appropriate interpretation of present law. In cases in which present law is unclear or the Internal Revenue Service (IRS) has taken a litigating position that has been challenged by taxpayers, the analysis of the revenue effect of a proposed statutory change first requires an assumption of the most defensible interpretation of present law. The JCT staff makes such a determination by giving considerable weight to the interpretation of the IRS and Treasury Department and by taking into account all other relevant information, including the extent to which the IRS interpretation has prevailed in court.

An example of an area in which present law is unclear is the tax treatment of insurance for long-term care expenses. There has been no guidance published by the IRS. In order to estimate the revenue effects of proposals to clarify the tax treatment of long-term care insurance, the JCT staff will be required to make assumptions about the status of long-term care insurance under present law. As part of its analysis of present law, the JCT staff has met extensively with representatives of the long-term care industry to learn the industry's view of present law.

2. Modeling and Forecasting Proposed Changes in Tax Law

Econometric and statistical simulation tax models

SOI-based models

For most income tax revenue estimates, the JCT staff relies on large computerized models of the Federal income tax system and the economy. These microsimulation models use as their primary input the confidential tax returns filed by individuals, corporations, and fiduciaries with the IRS. These data are provided to the JCT staff by the Statistics of Income (SOI) Division of the IRS.

Based on economic theory, these models combine the most recently available taxpayer information with forecasts of the aggregate level of national income provided by CBO as part of the budget baseline. For example, the JCT individual income tax model currently is based on data from the SOI. This is a random sample of approximately 200,000 individual tax returns. The sample was chosen to reflect accurately all major features of the individual income tax. The data in these returns are statistically adjusted to match current baseline projections for income, age of population, and other economic and demographic variables for the period 1992 through 1997.

To estimate the revenue effects of most proposed changes in the individual income tax, the JCT staff first uses the model to calculate the tax for each of the sample returns in the model on the basis of present law. It then recalculates the tax for each of the returns incorporating the parameters contained in the proposed legislation. In so doing, the model accounts for the interaction of all variable components of the taxpayer's return. For example, a 10-percent increase in the personal exemption from $2,000 to $2,200 does not necessarily increase the revenue loss associated with the personal exemption by ten percent. Some returns will become nontaxable as a result of the increase, while other returns will shift to a different marginal rate bracket; the model will take these changes into account. After statistically weighting the present-law and proposed-law tax payments to make the results reflect outcomes for the more than 100 million United States individual taxpayers, the computer run calculates the difference in total revenues between the present law and the proposal. This result obtained from the model is often only the first step in estimating the revenue change associated with a proposal. For example, as discussed below, off-model adjustments may be made to reflect interaction among a package of proposals or to reflect fiscal year budget reporting.

In addition to the individual tax model, microsimulation models based on SOI data developed by the staffs of the Joint Committee and the Treasury OTA staff include a corporate tax model, a partnership model, and an estate and gift tax model.

Other models

In addition to the large microsimulation models based upon large samples of tax returns, a variety of econometric models are utilized to estimate the revenue impact of changes in laws relating to business investment and depreciation, natural resources and energy, employee benefits, and other issues.

Frequently, the information needed to calculate the revenue effects of a proposal is not available from the tax return data or may be available only for a limited number of affected taxpayers. In these instances, it is necessary to look beyond the SOI data files and construct a model that relies on alternative sources of data. For example, proposals relating to excise taxes require information on the consumption of various commodities. Furthermore, it is often necessary to estimate statistical relationships from these data to predict how certain groups of taxpayers might alter their behavior when confronted by the proposed tax change. In addition, if a distributional analysis of the change is required, it may be necessary to account for those taxpayers not presently filing returns. Each of these steps would involve extensive use of auxiliary data not directly related to tax returns.

Sometimes data are available on tax returns but are not sufficiently disaggregated, or are reported in such a way as to be of little help to the estimator. In these situations, one can often obtain useful information by other means and "blend" the various data sources to produce a better estimate. A familiar example would involve calculating the effects of a proposed change in depreciation lives or methods. Typically, such a proposal would be narrowly focused on a particular type of plant or equipment (metal working machinery, for example). Since taxpayers are not required to list the type of equipment purchased (only the total amount within each category of depreciable asset), the JCT staff relies on aggregate investment figures provided by the Department of Commerce's Bureau of Economic Analysis (BEA) to allocate investment and depreciation deductions to specific firms. There are numerous other instances when non-SOI data are used in modeling tax law changes. They include proposals that alter the tax treatment of pension contributions, insurance company reserves, research and development expenditures, certain employee benefits, and tax-exempt bonds.

Data sources

As discussed above, to the extent possible, revenue estimates prepared by the JCT staff are based on tax return data supplied by the IRS. When non-tax data are required, estimates are done with the best and most reliable data sources otherwise available. Frequently, data may be available from other government agencies, such as the Department of Commerce, the Department of Transportation, Department of Labor, Department of Health and Human Services, the Social Security Administration, and the Federal Reserve Board. For example, the Current Population Survey conducted by the Bureau of the Census has provided much useful information, including information relating to pension plan participation by income class, that is not otherwise available.

When other Federal or State government data sources are not available, it is necessary to find other reliable sources, such as research done by leading economists or statistically-valid surveys done by the General Accounting Office (GAO) or consulting or research organizations. Infrequently, the only available data are those supplied by taxpayers affected by proposed changes.

Behavioral responses

Revenue estimates prepared by the JCT are dynamic in that they account for disaggregate behavioral responses. When tax policy places limitations on the ability of taxpayers to deduct passive losses, the JCT approach assumes that individuals change investment patterns and corporations claim a portion of the losses no longer available to individuals.

Similarly, when the Tax Reform Act of 1986 made it less attractive for property and casualty insurance companies to invest in tax-exempt bonds, it was assumed that these companies would shift partially out of investments in tax-exempt bonds to higher-yielding taxable investments and that other corporations and individuals would assume the tax-exempt bond holdings that the insurance companies previously held. This phenomenon of investment shifting is an example of what are collectively referred to as "portfolio effects."

In many cases, empirical research can provide estimates of taxpayer responses to proposed changes in tax legislation. If adequate data exist, responsiveness can be estimated statistically. For example, sufficient data are available to permit revenue estimates to take into account the expected change in demand for cigarettes that would result from a change in price due to a change in the cigarette excise tax.

Unfortunately, cases frequently arise in which reliable data are not available. In these situations, the estimating staff must rely on their cumulative experience, guided by relevant economic theory, to assess possible behavioral responses resulting from proposed legislative changes. For example, proposed changes in the tax treatment of life insurance products, especially changes that discourage partial surrenders or loans from life insurance contracts, require assumptions about behavioral response. For each proposal, an assumption must be made as to (1) whether taxpayers will continue to invest in life insurance policies, and (2) whether those taxpayers who do invest in life insurance will make a partial surrender or a loan. Assumptions of behavioral response are needed to determine the effects of relatively small changes in a proposal, such as the difference between a 10- or 15-percent additional tax on partial surrenders or loans.

Generally, a revenue estimate prepared for any proposal that increases or reduces the deductibility or excludability of an item of expense or income, or that changes the rate of tax on certain types of income or consumption, will incorporate an analysis of potential behavioral response.

Holding fixed the level of macroeconomic aggregates

Revenue estimates often mistakenly are referred to as "static" because the estimates assume no overall effect on economic aggregates such as gross national product. In other words, total employment, investment, and other economic aggregates are assumed to remain unaffected by most tax proposals. However, the components of these variables change among sectors or industries. For example, when the deduction for business meals was reduced, employment displaced in the restaurant industry was assumed to be absorbed in other industries (e.g., food wholesaling and retailing).

The performance of the economy is influenced by the Federal Government's overall monetary and fiscal policy, as well as by many factors largely outside the control of Government. These factors are incorporated into baseline receipts estimates. It would be difficult, if not impossible, to isolate and quantify the macroeconomic effects resulting from proposed changes in the tax law. There are several reasons for this. First, most changes involve detail at a level far more specific than that of any existing macroeconomic forecasting model. Second, it is not meaningful to discuss the macroeconomic impact of a single tax change in isolation of other changes in fiscal and monetary policy. Any increase or reduction in taxes requires a compensating change in taxes or spending, either at the same time or in the future. If debt is issued to pay for a tax cut today, that debt must still eventually be paid off. The Federal Reserve's decisions regarding monetary policy

cannot be assumed independent of fiscal policy actions. Yet, it is rarely clear what fiscal and monetary actions will result from the tax change in question. Finally, despite extensive theoretical and empirical research, there is still a great deal of uncertainty and controversy about the effects of taxation on economic growth, investment, savings, productivity, and interest rates.

Furthermore, while specific tax policies may significantly influence certain sectors of the economy, they may not have significant influence on overall totals. Moreover, as noted above, for consistency and comparability in budget planning, Congressional estimates of tax as well as spending legislation are constrained to be consistent with CBO macroeconomic forecasts.

Ordinarily, the following economic variables, as supplied by CBO, are assumed to be unchanged by proposed tax law changes for revenue-estimating purposes:

-- Gross national product
-- Total employment
-- Aggregate investment
-- Interest rates
-- Overall price index
-- Total level of State and local taxes

Although these aggregate levels are fixed in the CBO baseline, the composition of the variables underlying these aggregates is allowed to vary. Examples of elements of economic forecasts that may be reallocated include the following:

-- Shifts between corporate and noncorporate income
-- The mix of gross private investment (e.g., equipment versus structures)
-- Relative prices

Off-model adjustments

After a microsimulation model produces a preliminary estimate of the revenue effect of a proposal, it is often necessary to make what are called "off-model" adjustments. These adjustments address questions that cannot be answered by directly applying the simulation models. They are the most time-consuming and often the most difficult aspects of the estimating process.

A tax cut that encourages a particular activity may be expected to attract resources from other activities, thus reducing tax revenues from the abandoned activities. For example, a change in corporate tax rates would be expected to change future decisions concerning the choice of business form (e.g., S-corporation versus C-corporation) by which

business income will be taxed. However, the corporate income tax model models only C-corporation behavior. Only an off-model adjustment will reflect this shift of resources. In this example, the staff would adjust the results of the microsimulation model for estimates of future changes in business form. This process may require extensive data collection from a wide variety of government and/or private-sector sources. Projects of this nature often must be based in large part on the judgment of the economists aided by other information gathered from various data sources, economic theory, statistical probabilities, and other models.

Cash-flow scorekeeping

Assessing the revenue effects of certain proposals may be unusually difficult because they not only change the amount of tax collected, but also change the timing of tax collections. Traditional budget scorekeeping accounts for the revenue effects of proposed legislation on a cash-flow basis; in other words, the effect of a provision on budget receipts in the five-year budget period is estimated without regard to whether the provision will also affect budget receipts in any subsequent year.

As an example, this scorekeeping method scores "deductible IRAs" as losing more revenue than "special IRAs". The traditional deductible IRA can be viewed as a provision which both delays payment of tax on the contribution until withdrawal and effectively exempts from tax any earnings on capital accumulation beyond the amount that represents interest on the delayed tax. Thus, the timing of tax payments results in a revenue loss to the Government in the early years, but a revenue gain in later years when the funds are withdrawn. So-called special IRAs would not permit deduction of amounts contributed to IRAs, but would exempt all earnings and qualifying withdrawals from taxation. In this case, the timing of tax payments results in little revenue loss in the early years, but more substantial revenue loss in later years when the funds are withdrawn. However, a present-value calculation demonstrates that so long as tax rates do not change the long-term cost to the Federal Government of deductible IRAs and special IRAs will be approximately equal. This is because a present-value approach recognizes that tax will eventually be collected on funds in deductible IRAs when withdrawn.

Calculating revenue estimates on a present-value basis requires making assumptions about the baseline for activity that occurs beyond the five-year reporting period. Such estimates are likely to be less accurate than shorter term forecasts; that is, there is greater uncertainty of predicting the amount of receipts that are anticipated to be received after the five-year reporting period. Moreover, additional assumptions, such as an appropriate discount rate,

are required, and the reliability of these assumptions could be challenged. For example, the present-value revenue cost of IRAs will be sensitive to the assumptions made about when taxpayers make withdrawals from their IRAs; this assumption has a much smaller effect on revenue estimates of IRA proposals done on a cash-flow basis (assuming most withdrawals are outside the five-year budget period).

The use of a five-year reporting period for revenue estimates can understate revenue effects for other reasons as well. If the effective date of a proposal is delayed or if the proposal is phased in during the reporting period, the long run revenue effects of the proposal will not be reflected by revenue estimates provided for the reporting period only.

Although constrained to provide revenue estimates only for the five-year budget period, the JCT staff attempts to provide additional information concerning the likely pattern of revenue changes beyond the five-year window whenever it is deemed relevant to a complete analysis of proposed legislation. However, the accuracy of actual revenue estimates provided for more than a five-year period would be seriously diminished due to the uncertainty of any long-range economic forecasts and other assumptions relevant to the preparation of a revenue estimate.

Calendar year liabilities and Federal fiscal year receipts

To be useful tools in budget analyses, estimates must be presented in a form consistent with the Federal Government's cash-flow accounting system. That is, amounts received by the Treasury are accounted for at the time of receipt and disbursements are accounted for during the period when paid out.

To be consistent with the cash-flow measure of budget receipts, revenue estimates are shown as fiscal year receipts to the Treasury Department. However, because the majority of taxpayers calculate and pay taxes on a calendar year basis and most data sources are available in calendar year terms, analyses are conducted on a calendar year liability basis. For purposes of distributional analyses, calendar year data are used exclusively. Because taxes are most often calculated on a calendar year liability basis, the translation of changes in calendar year tax liabilities into changes in the fiscal year receipt of taxes is necessary. This translation is referred to as a "fiscal split." While the mapping of calendar year liabilities into Federal fiscal year receipts can be complex, the general relationships for certain categories of proposals have been determined from historical tabulations.

Ratios showing the fraction of a change in calendar year liability that will show up as a change in collections for the same fiscal year and for the following fiscal year are based on patterns of withholding, estimated payments, refunds, and final payments. For example, a proposal to change individual income tax rates effective in calendar year 1993 would result in approximately 60 percent of the 1993 calendar year change allocated to Federal receipts in fiscal year 1993 and 40 percent going to fiscal year 1994. On the other hand, a proposal affecting the business income of individuals for calendar year 1993 would result in only about 35 percent of the change in receipts allocated to the 1993 fiscal year and 65 percent going to the 1994 fiscal year.

In the first example, a large portion of the effect of the tax rate change would be collected through wage and salary withholding. Thus, the "fiscal split" more closely resembles the 75-percent/25-percent division one would expect since three quarters of calendar year 1993 falls in fiscal year 1993 (January-September). In the second example, the income involved often will not be subject to withholding. That is, a much larger portion of the change will be observed in quarterly estimated payments and final payments in the following fiscal year (i.e., after October 1). Because most proposals have specific start-up effects and transition rules, it is not possible to generalize too extensively. Thus, even the preceding analysis will not apply to some proposals.

Certain situations arise when revenue estimates reflect only a "speed-up" in receipts. Changing the rules for estimated tax payments or the rules governing the withholding on various types of income may have a significant fiscal year revenue effect while not creating additional total tax liabilities.

Interaction and stacking order

When two or more items within the Internal Revenue Code are to be modified simultaneously, the result of the combination of changes often produces a greater or lesser revenue effect than the sum of the amounts shown for each item separately. If this interaction is ignored, the analysis is incomplete; if the interaction is assigned to any one element of a proposal, that proposal inappropriately may be accepted or rejected on that basis alone.

The proper interpretation of the revenues attributed to specific provisions and the accompanying interaction are determined by the "stacking order" of the analysis. There are two principal methods of presenting these results in line-by-line revenue tables, and it is important to note that the numbers in each type of presentation may appropriately answer different questions.

The first of these methods provides a revenue estimate for each proposal in isolation against present law, assuming none of the other proposals is adopted. A separate line on the revenue table displays interactions among proposals. This procedure is usually the most efficient when only a few provisions are to be changed. Under this method, deleting a proposal from the package may have a greater or lesser revenue effect than the effect shown on the specific line for that proposal.

A second method requires that each proposal be estimated as if all other proposals have already been enacted with a separate line again used to display interactions among proposals. The JCT staff utilized this second method to analyze the Tax Reform Act of 1986. This method showed the revenue impact of adding or deleting specific provisions from the total tax reform package (rather than the revenue impact relative to present law of that single change without making any of the other changes contained in the package).

Measuring revenue effects against a baseline which holds fixed macroeconomic aggregates requires accounting for an additional type of interaction. Under the assumption of a fixed macroeconomic baseline, a tax change that would affect one component of gross national product is assumed to have an offsetting effect on other components of gross national product. For example, an increase in payroll taxes is assumed to reduce taxable income in the economy. This reduction in taxable income may result directly from declining taxable net profits of producers, as payroll taxes are deductible business expenses, or it may result from a decrease in consumer demand for all goods and services as after-tax income falls.

Compliance and enforcement

Implicit in all revenue estimates are assumptions concerning compliance and enforcement. The revenue yield of any provision results from compliance by taxpayers, that is, voluntary behavior and enforcement (including penalties assessed by the IRS). Enforcement actions by the IRS also affect the level of voluntary compliance. In general, levels of compliance and enforcement are held constant within the baseline forecast. For example, a change in tax rates does not change the number of delinquent non-filers nor does it increase the IRS audit rate.

Certain changes in law are specifically designed to improve compliance and also have the potential to affect enforcement. An example is the extension of information reporting to previously uncovered income sources. Information reporting generates compliance revenue by changing taxpayer perceptions of the risks involved with noncompliance. In addition, the information reporting document could be of use

to the IRS in the generation of enforcement revenues, either in the matching or audit process.

Revenue estimates of so-called "compliance" provisions do not always recognize both compliance and enforcement effects. The realization of compliance revenues in the example above requires only that the law change in order to change taxpayer behavior. Thus, compliance revenues are included in the estimate. Downstream enforcement revenues, however, are dependent upon specific actions by the IRS, which may or may not occur depending on resource allocation decisions. Using the assumption of a constant baseline level of enforcement, such revenues would be "counted" only in the event of specific resource allocations and not merely because of a change in law. Thus, in the above example, only the compliance revenue would be counted unless there were adequate resource allocations to justify counting the enforcement revenues.

The JCT staff does not estimate the administrative costs incurred by either the IRS or taxpayers that may result from proposed legislation.

C. Tax Expenditure Estimates and Revenue Estimates[2]

Under the Congressional Budget Act, the JCT is mandated to transmit annually to the House and Senate Budget Committees its estimates of tax expenditures during the five-year budget period. After transmitting its report to the Budget Committees, the JCT staff has traditionally published its list of tax expenditure estimates.

Tax expenditure estimates measure the decreases in individual and corporate income tax liabilities that result from provisions in income tax laws that have been enacted to provide economic incentives or tax relief to the private or public sectors. The estimates measure the extent of relief to particular kinds of taxpayers relative to a comprehensive income tax structure in which no economic incentives are provided.

As defined in the Congressional Budget Act, tax expenditures relate only to the corporation and individual income taxes. Other parts of the Internal Revenue Code--excise taxes, employment taxes, estate and gift taxes--also have exceptions, exclusions, refunds, and credits, but they are not currently considered tax expenditures because they are not parts of the income tax.

The JCT staff traditionally lists as a tax expenditure any item for which there is a reasonable basis for such classification and a revenue loss above a de minimis amount. The list is intended to be informative and cannot be viewed as revenue estimates of legislative proposals.

Tax expenditure estimates do not represent an attempt to measure the revenue effects of repeal of a provision. Rather, they are a measure of the economic incentives provided by provisions within the current law. They do not include (1) behavioral responses, (2) transitional effects, or (3) possible interaction with other incentives.

---

[2] For a more detailed discussion of the concept of tax expenditures see, Joint Committee on Taxation, Estimates of Federal Tax Expenditures for Fiscal Years 1993-1997 (JCS-8-92), April 24, 1992.

D. Distributional Analysis

Measuring the change in the tax burden

To accompany revenue estimates, data are often prepared on the estimated changes in the benefit or burden by income class that result from adoption of a given proposal. Distributional analysis attempts to measure the changes in taxpayers' economic welfare that result from changes in the tax law. The JCT staff calculates the benefit or burden assuming no change in behavior (this is not necessarily the behavioral assumption in the corresponding revenue estimate). Taxpayers will, in general, alter their behavior only if the change makes them better off. Consequently, the JCT calculation is an approximation which tends to understate benefits and overstate burdens, depending upon the extent of behavioral response.

The distributions reported are distributions of the tax incidence rather than the distribution of taxes paid. The following example highlights the confusion which can arise by an attempt to compare an analysis of the distribution of taxes paid with an analysis of the distribution of the after-tax benefit of the tax reduction (referred to by economists as the "incidence" of the tax). Assume that when bread costs $.60 per loaf that the consumer will purchase two loaves, but if a tax of $.40 per loaf is imposed driving price to $1.00 per loaf, the consumer purchases only one loaf. The consumer pays $.40 in tax but only consumes one loaf of bread rather than two. To reflect this lost consumption as a burden of the tax, the JCT would estimate the burden of this tax to be $.80, the amount of tax that would have been paid had the consumer continued to purchase two loaves.[3] More dramatically, if when the tax on bread were increased to $.80 per loaf the consumer purchased no bread, an analysis of the distribution of taxes paid would show that the consumer paid no tax. A tax incidence analysis would show that the tax imposed a burden on the consumer because he or she no longer consumes bread.

The distributional analysis is consistent with the five-year budget horizon used for revenue analysis. Specifically, the benefit or burden of a tax change reported

---

[3] As discussed above, because the consumer changes his or her behavior in response to the tax on bread, the estimate of a burden of $.80 is an overestimate. However to refine such an estimate further would require knowledge of the behavioral response of each taxpayer or groups of taxpayers. Such information generally is not available. On the other hand, the revenue effect can be estimated if only the behavioral response of taxpayers in aggregate is known.

by income class is the annual change (held constant except for growth in the economy) whose present value over the five-year budget horizon equals the present value of the impact of the actual provision. That annual change is reported as a dollar amount in the first year of the budget horizon.

The following examples illustrate the method by which the JCT calculates the annual change in benefit or burden. In all three of the examples below, the economy is assumed to grow at a rate of 5 percent per year. Any reduction in tax burden from a permanent reduction in marginal tax rates is assumed to grow at the same rate of 5 percent per year. The interest rate used for present value calculations is 10 percent.

Example 1.--Consider a permanent cut in marginal tax rates that reduces an individual's tax burden by $100 in 1993. Because of the assumed growth rate, that individual's tax burden would be reduced by $105 in 1994, $110 in 1995, $116 in 1996, and $122 in 1997.

The distribution methodology finds the reduction in the 1993 tax burden (with subsequent reductions increasing at the economy's growth rate) which has a present value over the five-year budget horizon equal to the present value of the actual tax reductions that will occur from 1993 through 1997 ($415.31). In this case, the answer is $100 (implying subsequent reductions of $105, $110, $116 and $122, respectively)--the tax reduction actually received in 1993. Because the tax change is immediate and permanent, the answer is the same as if only 1993 were considered.

Example 2.--Suppose, instead, that the cut in marginal rates is effective only for 1993. In this case, the same taxpayer's gain would be $100 in 1993, but $0 in each of the four subsequent years in the budget period. With an interest rate of 10 percent, this one-year tax burden reduction has the same present value to the taxpayer ($90.91) as a permanent tax reduction that reduces the burden by roughly $22 in 1993, with 5-percent growth in each subsequent year. In this case, the change in the taxpayer's burden is reported as $22.

Example 3.--Finally, assume that the tax reduction is of the same magnitude as in Example 1, but is delayed, taking effect only in 1997. The taxpayer's benefit is $122 in 1997, but $0 in each of the first four years of the budget period. An immediate, permanent reduction in taxes of about $18 in 1993 (growing by 5 percent thereafter) would provide the same present value benefit ($75.75) to the taxpayer. In this case, the change in burden is reported as $18.

Classifying taxpayers by income

The income concept used to place tax returns into income classes is adjusted gross income (AGI) plus: (1) tax-exempt interest; (2) employer contributions for health plans and life insurance; (3) inside build-up on life insurance; (4) workers' compensation; (5) nontaxable Social Security benefits; (6) deductible contributions to individual retirement arrangements (IRAs); (7) the minimum tax preferences; and (8) net losses, in excess of minimum tax preferences, from passive business activities.

This definition of income represents an attempt to include items that clearly increase the ability to pay taxes, but that are not included in the present-law definition of AGI. The adjustment for losses from certain passive investment activities reflects the fact that investments in such activities may result in losses for tax purposes that do not represent real economic losses.

This income definition is subject to various limitations. Because data that can accurately be matched with tax returns are not available, the definition of income omits certain items which clearly affect a taxpayer's ability to consume goods and services. Such items include accrual of pension benefits, the value of certain fringe benefits (such as military benefits, veterans benefits, and parsonage allowances), means-tested transfer payments (such as Aid to Families with Dependent Children, Supplemental Security Income, food stamps, housing subsidies, and general assistance), and imputed rent to owner-occupied homes. Thus, a decision may be made to change the taxation of one of these omitted items, such as changing the taxation of pension benefits, but the impact of that change cannot be shown in the distributional tables even though the change obviously has a distributional effect.

One of the major problems in preparing income distributions is selecting the appropriate unit of classification. In all distributional analyses, the JCT staff uses the tax-filing unit as the unit of classification. The Treasury Department in recent years has begun using a family concept for this purpose. Under this approach, a family unit may consist of several tax-filing units. However, because information is not available to match members of the tax-filing units (parents, children, grandparents, etc.) on a family basis, the JCT staff believes the greater accuracy of using the tax-filing unit as the unit of classification outweighs the advantages of the family unit classifier.

Review of methodology

The JCT staff is currently undertaking a comprehensive review of the methodology used to prepare distributional analyses of revenue estimates. Changes made as a result of this review should better aid the members of Congress in their analysis of proposed legislation.

II. REVENUE ESTIMATION PROCESS

This part answers some of the commonly asked questions regarding the JCT staff revenue estimation process and procedures.

A. Administrative Procedures

1. Why do I need revenue estimates from the JCT? How do I request an estimate?

The JCT staff is the official scorekeeper of Congress for the budgetary implications of any proposed tax changes. Under the Budget Enforcement Act of 1990, any proposed reduction in taxes must be "paid for" with either an offsetting tax increase or a direct spending (entitlement) decrease. In order for a tax proposal to be considered by Congress, it must be accompanied by a JCT revenue estimate.

A Member who wishes a revenue estimate should send a written request to Harry L. Gutman, Chief of Staff, Joint Committee on Taxation, 1015 Longworth House Office Building. The request should describe in as much detail as possible the provisions of the proposal to be estimated (including an effective date), include any statutory language available, and also include the name of a contact person in case there are questions about the details of the proposal. The request generally must be signed by a Member of Congress.

2. How can I get the general information needed to formulate a proposal and request an estimate?

The professional staff of the JCT consists of lawyers, accountants, and economists. JCT staff is available to Members and their legislative staff to help formulate proposals and to discuss the possible economic, legal, administrative, and revenue implications of such proposals. It is often helpful to meet with the JCT staff to discuss proposals before a formal revenue estimate is requested.

3. How are staff priorities set in providing estimates?

All Members of Congress may request estimates from the staff of the JCT. Work on estimates is begun on a first-in first-out basis, with some exceptions made for previously estimated proposals. However, difficulty in obtaining data and developing the necessary model may result in some responses taking longer than others. Requests from House Ways and Means and Senate Finance Committee Members may receive higher priority when legislation is pending in the respective committee.

4. After receiving a revenue estimate, how can I obtain more information about how it was produced?

Follow-up questions concerning revenue estimates should be directed to Harry L. Gutman (Chief of Staff, 225-3621), Alan J. Auerbach (Deputy Chief of Staff, 225-3780), or Bernard A. Schmitt (Associate Chief of Staff-Revenue Analysis, 226-7575). If the person you contact cannot answer your question or satisfy your concerns, he will:

- o Determine the answer and respond in writing or by telephone;
- o Direct the appropriate estimator to provide the relevant information to the Member's staff; or
- o Arrange a meeting between the Member and/or Member's staff and relevant JCT staff to discuss the issue.

5. Under what circumstances are revenue estimates done at the request of one Member provided to other members and non-Members?

Requests for revenue estimates of legislative proposals are treated as confidential correspondence. Generally, revenue estimates are released only to the Member making the request. Therefore, the estimate remains confidential unless the Member decides to make the estimate public. This confidential treatment of Member proposals extends to the process of developing tax legislation, which may involve substantial consultation between a member (and his or her staff) and the JCT staff. Similarly, any information provided to the JCT staff to help in the formulation of a revenue estimate is treated confidentially and not released outside the JCT staff.

It should be noted, however, that any Member of Congress may request a revenue estimate of tax-related legislation which has been introduced or that otherwise has entered the public domain. Accordingly, several members may request the same estimate for a legislative proposal. In addition, when a revenue estimate has been included in a publicly available document (e.g., a revenue table summarizing a markup proposal or the results of a markup), the estimate is made available to anyone upon request.

6. Why doesn't JCT include with each revenue estimate the methodology used to produce that estimate?

The workload facing JCT revenue estimation staff has grown rapidly in recent years. Providing additional details with each estimate would slow the revenue-estimating process unnecessarily, since such details may be desired only in a small number of cases.

Moreover, JCT experience suggests that it is difficult to anticipate in which details a Member will be interested. Each estimate typically is based on a number of assumptions. While most of these assumptions are probably not of direct interest to a Member requesting an estimate, it may also be that the estimate depends critically on assumptions about which the Member might not inquire, or that some questions cannot be addressed in a meaningful way without a lengthy discussion of the estimation approach.

If a Member wishes to obtain additional information regarding the methodology used to produce an estimate, the Member may contact the Chief of Staff (as discussed in question 4, above). As an alternative, the JCT staff finds it more helpful to meet with Members and their staffs to review the relevant assumptions. The staff also, where it is warranted, produces documents or letters describing a particular estimating methodology in detail.

B. Elements of Revenue Estimates

1. Why can't estimates outside the budget window be provided?

In preparing revenue estimates, the JCT staff is required to use the budget baseline and related macroeconomic forecasts provided by the Congressional Budget Office (CBO). The CBO provides these forecasts for a five-year period (the "budget window"). These forecasts form the fundamental basis for all revenue estimates. Their use ensures that various revenue estimates and distributional analyses will be comparable.

While the JCT is constrained to provide estimates only for the five-year budget period, the JCT staff will provide general information concerning the likely pattern of revenue changes beyond the five-year budget window whenever it is deemed relevant to a complete analysis of proposed legislation. However, the JCT staff generally will not provide a specific revenue estimate for more than a five-year period because its accuracy would be seriously diminished due to unavailability of CBO forecasts beyond the five-year period, the uncertainty of long-range economic forecasts, and other assumptions relevant to its preparation.

2. Why do estimates change during a legislative session? How does JCT determine when to change estimates?

JCT staff attempts to be both timely and thorough in the provision of estimates. Sometimes these goals conflict, requiring the issuance of revised estimates. New information about affected taxpayers or methodological improvements may require changes. Other reasons an estimate may change include revisions to the forecast of tax receipts and other macroeconomic variables provided by the CBO, an alteration in "stacking order" (whether and how an estimate accounts for interactions with other proposals contained in pending legislation), regulatory and judicial developments, and changes in the period covered by the estimate (usually three, five, or six years depending upon the rules of the House or Senate pursuant to which the estimate is issued).

The JCT staff is aware of the difficulties caused by changes in estimates when legislation is being actively considered, and attempts to balance this concern with the task of providing Members with accurate information. Changes that would have major impacts on Federal budget receipts are likely to be communicated as they become known. In addition, original responses often include caveats indicating the potential for subsequent change: for example, the response to a request for an estimate of a proposal creating a variable oil import fee may note that the estimate is dependent on world oil prices.

3. What explains the different revenue patterns observed for particular estimates over the budget window?

Revenue estimates generally measure the flow of tax payments resulting from a legislated change in the tax law. These estimates are presented as changes in fiscal year budget receipts to be consistent with the Federal Government's cash flow accounting system. Normally, estimates will follow a pattern consistent with the forecasted growth of macroeconomic aggregates.

It is often noted that the first-year revenue effect in any five-year estimate is "small" relative to succeeding years. The basic cause of this apparent anomaly is that most taxpayers accrue and pay their taxes on a calendar year basis while the Federal fiscal year ends on September 30. Typically, only 75 percent of tax liability accrued on a calendar-year basis falls in the corresponding fiscal year. For example, if individual income tax rates were changed effective January 1, and even if withholding were immediately adjusted, the first-year receipts would reflect only 75 percent of the first-year accrual whereas the second and succeeding years' receipts would reflect 75 percent of the present-year accruals plus 25 percent of the prior years' accruals. Often, changes in tax payments resulting from changes in the individual income tax do not occur until the following April. Corporate income taxes and excise taxes similarly are affected by the difference between calendar and fiscal years, and by the schedules under which the various taxes are paid.

Another type of revenue estimate involves only changes in the timing of payments without a change in underlying liability. In the case of a speed-up of payments, the pattern is typically an increase in Year 1 receipts, followed by little or no change in succeeding years. Since only the timing of payments is affected, the movement of payments to Year 1 results in a equal decrease in payments in Year 2. In turn, the payments moved up from Year 3 to Year 2 offset the loss of payments in Year 2 and so forth.

4. What role do assumptions about behavioral responses to tax changes play in revenue estimates?

All JCT staff estimates incorporate several types of behavioral effects. The simplest are those that change a taxpayer's filing strategy or status. For example, if an increase in the standard deduction would make it advantageous for a taxpayer to switch from itemizing deductions to claiming the standard deductions, the estimate assumes taxpayers do so.

The JCT staff also considers microeconomic, or individual market-level, responses to changes in the tax code. These effects are incorporated into JCT estimates based on commonly accepted precepts about supply and demand. For example, the revenue estimate for an increase in the gasoline excise tax assumes a reduction in the amount of gasoline purchased that is commensurate with demand responses reported in studies of previous gasoline price changes.

The JCT does not estimate the effects of changes in macroeconomic aggregates, which some people call "feedback" effects. For example, the JCT assumes that gross national product, the price level, and the total, national level of employment are not affected by most tax changes. There are several reasons why macroeconomic "feedback" effects are not incorporated:

(1) The JCT takes the Congressional Budget Office (CBO) baseline as given so that there is a common foundation for JCT revenue estimates and the CBO expenditure estimates. Consistent use of the baseline is necessary for symmetric treatment in the analysis of the budgetary effects of changes in outlays and changes in receipts.

(2) The effect of a tax change on macroeconomic aggregates is often unclear. The magnitude, and even the direction (positive or negative), of these effects would depend on the theoretical model of the economy that is used and assumptions about resulting monetary and fiscal policy responses. There is no consensus in the economics literature as to which model is appropriate in which circumstances.

(3) None of the theoretical models of the economy provides sufficiently precise predictions of the timing of tax-induced changes in macroeconomic aggregates to predict the effects of a proposal on a specific year's budget receipts.

5. What are offsets in revenue estimates and how are they used?

Because the baseline holds macroeconomic aggregates fixed, a tax change that would affect one component of gross national product is assumed to have an offsetting effect on other components. For example, an increase in payroll taxes is assumed to reduce taxable income in the economy, most directly in the taxable net profits of producers because such taxes may be deductible as business expenses. Hence, the increase in revenues from the payroll tax is partially offset by a decrease in revenues from income taxes.

6. What are the basic data sources used by JCT in producing estimates?

The starting point for many revenue estimates is tax return data supplied to the JCT staff by the Internal Revenue Service. These confidential data are usually samples of the tax returns actually filed by taxpayers and are chosen so that they are representative of all individual, corporate, and other fiduciary filers. Frequently, however, revenue estimates must be prepared for proposals for which tax return data are not available. When this occurs, estimates are done with the best and most reliable data sources otherwise available.

Frequently, data are obtained from other governmental agencies, such as the Department of Transportation, Department of Commerce, Department of Labor, Department of Health and Human Services, the Social Security Administration, and the Federal Reserve Board. For example, the Current Population Survey conducted by the Bureau of the Census has provided much useful data, including information relating to pension and health insurance plan participation by income class that is not otherwise available. Likewise, the Department of Labor conducts a quarterly survey of consumer expenditure patterns (CES) that is the only comprehensive data source of its kind. Additionally, certain types of publicly available data are purchased from private firms as well as academic institutions that specialize in the collection, transcription, and interpretation of this information. Infrequently, the only available data are those supplied by companies or taxpayers affected by proposed changes.

7. What role do the revenue estimates and information provided by outsiders (including lobbyists) play in the formation of JCT estimates?

Revenue estimates prepared by outsiders do not play a role in JCT estimates. However, revenue estimating is an information-intensive process and outside information, whether or not accompanied by an estimate, may be useful in helping form the JCT estimates. Outside information may be helpful, for example, when data relevant to the estimate are proprietary and therefore not otherwise available to the JCT estimator.

It should be noted, however, that when information is provided by parties with a direct interest in the issue, the information is closely reviewed for possible bias.

8. Are estimates ever checked for their accuracy?

Every revenue estimate is subject to a comprehensive internal review prior to being transmitted to the requesting Member. In certain instances, particularly when the economics literature gives little guidance, the estimate and a detailed description of the underlying assumptions and methodology are conveyed to experts outside the JCT staff to solicit additional views, comments or suggestions. In situations where data are readily available, calculations are straightforward or when offsetting interactions are unambiguous, the accuracy of revenue estimates is generally monitored in the ordinary course of updating and calibrating the various models used for revenue estimation. This is usually the case, for example, when a proposal is enacted into law either in isolation or as part of a small, narrowly-focused piece of legislation.

In other cases, there are a number of practical reasons why an ex post analysis would be problematic. First, economic forecasts that were relied upon in arriving at the estimate may prove to have been incorrect and the estimate certainly would have been different if a different forecast had been used. Second, much like the case of changed economic forecasts, subsequent tax legislation may change the context in which the initial estimate was made. For example, a deduction is more valuable to taxpayers when marginal tax rates are high than when marginal tax rates are low. Third, in many instances, estimates assume that there is a behavioral response on the part of taxpayers to several provisions enacted simultaneously and it is often very difficult to measure accurately the differential impact of each provision with the data available.

C. Distributional Estimates

1. Why doesn't JCT show the distributional effects of all proposals?

The JCT staff does not provide estimates of distributional effects for proposals when it cannot accurately determine the impact of the proposal on different income groups. Since it is possible to measure the magnitude of the change in total taxes paid without knowing how these tax changes are allocated among income groups, distributional estimates generally are much more difficult than revenue estimates. Also, unlike revenue estimates, distributional estimates are not required before a proposal can receive legislative consideration.

In some instances, data on the income levels of the affected taxpayers are not available. For example, data on each income group's consumption of ozone-depleting chemicals (upon which there presently is an excise tax) do not exist.

In other cases, it is conceptually difficult to allocate the burden of certain taxes (such as those paid by businesses or nonprofit groups) among individuals. As part of its ongoing review of its distributional methodology, the JCT staff is analyzing some of these conceptual issues. This review may result in an expansion of the set of proposals for which the JCT staff can provide estimates of distributional effects.

2. What do the burdens in the new JCT distributional tables represent?

The distributional tables prepared by the JCT staff estimate the effects of particular proposals on the economic well-being of taxpayers in different income classes. The estimate of the change in economic well-being represents the change in taxpayers' annual economic tax burden over the five-year budget window.

The measure of economic burden may not represent changes in taxes paid, because the extent to which an individual is made better or worse off by a particular provision may not depend on whether he or she pays the tax. For example, although an increase in an excise tax may require retailers to remit larger payments to the government, it is often assumed that the consumer of the taxed good actually bears the burden of the tax (by facing higher prices than would otherwise be the case). Thus, the JCT's measure of the distributional burden resulting from such a proposal would show consumers (who might fall in different income classes than retailers) bearing a larger tax burden. For other provisions, such as an increase in individual income tax rates, measures of burden may correspond to changes in taxes paid.

Sometimes, a proposal's distributional effects may appear to be inconsistent with its revenue estimate. A simple, although extreme, example is the introduction of a large tax on a particular good. If the tax is so high as to completely eliminate consumption of the good, then the revenue estimate will be zero, but the burden on different income classes will be positive (since they are now spending their income on presumably less-preferred goods) and possibly quite large. A practical, less extreme example of the distinction between revenue and distributional impacts can be found in the JCT's analysis of the five-cents-per-gallon gasoline tax increase in the 1990 budget agreement. In that case, distribution of burden was based on current levels of consumption, while the revenue estimate accounted for reduced demand resulting from higher prices. In general, a proposal's revenue impact cannot be directly inferred from the accompanying distributional table.

APPENDIX

Number of Revenue Requests Received by the Joint Committee on Taxation Staff, 1985-1992

Year		Number of requests
1985		348
1986		474
1987		420
1988		900
1989		1,290
1990:	Correspondence	950
	Tables (Budget Summit)	336
	Total	1,286
1991		1,460
1992 [as of 7/21/92]		1,790